REMARKS

Claims 1-23 are pending. Claims 1-15 and 21-23 have been withdrawn from consideration. Claims 16-20 are currently under examination. Claim 16 is currently amended. Reconsideration of the application is requested.

§ 112 Rejections

Claims 16-20 stand rejected under 35 USC § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention.

Claim 16, lines 10-12 have been amended to replace "where the *first portion* initially contacts" with "where the *web* initially contacts" and to replace "where the *second portion* leaves" with "where the *web* leaves."

Accordingly, Applicant submits that the rejection of claims 16-20 under 35 USC § 112, second paragraph, has been overcome, and that the rejection should be withdrawn.

§ 103 Rejections

Claims 16, 17, 19, and 20 stand rejected under 35 USC § 103(a) as being unpatentable over Shimoda et al. (U.S. 6,362,020) in view of Okubo et al. (JP 63-171755, previously submitted unverified translation) and Akira (U.S. 4,952,281).

Independent claim 16

Amended claim 16 calls for, among other things:

"measuring the distance that the radiused section of the web extends into the third portion of the web path with a sensor to determine at least one of a measured position and a measured radius of the radiused section;

creating a signal based on at least one of the measured position and the measured radius; and

controlling the effective radius based on the signal while the web is moving through the web path."

As evident when reading amended claim 16 in its entirety, claim 16 is at least partially directed to a closed feedback loop, or a feedback control system, wherein a signal is created and the effective radius is controlled *based on the signal*. Applicant respectfully submits that amended claim 16 is not taught or suggested by any of Shimoda et al., Okubo et al., or Akira, either alone or in combination.

Shimoda et al. teach a process of forming a deposited film on a belt-like substrate by a roll-to-roll system, the process comprising the step of eliminating a curl deformation of the belt-like substrate resulting from application of a deformation stress, by exerting an external stress on a non-depositing surface of the belt-like substrate (*Shimoda et al.*, Abst.).

The Examiner has asserted that Shimoda et al. suggest a method of signaling the system to adjust but do not expressly disclose what that method entails. Applicant disagrees. Shimoda et al. teach a handle 703 (see FIG. 7) for adjusting a distance between faced rollers 701, but in no way do Shimoda et al. suggest a method of signaling the system to adjust. Particularly, in no way do Shimoda et al. suggest a feedback system such as is claimed in claim 16.

In addition, the Examiner has asserted that Shimoda et al. do not expressly disclose processing a web of indeterminate length. However, as discussed in the telephone interview on July 27, 2007, Applicant would like to clarify that in the web handling industry, Shimoda et al.'s disclosure may be considered relevant to handling webs of indeterminate length.

Neither Okubo et al. nor Akira cure the deficiencies of Shimoda et al. in teaching all of the limitations of amended claim 16.

First, Okubo et al. teach a system for handling sheets. Even though the controls that Okubo et al. utilize may be satisfactory for a sheet handling system, where the rolled form removal device can respond independently to each sheet, this type of control would not be adequate for handling a "*web of indeterminate length*," as claimed in amended claim 16. Without further

sensing and adjusting the position or slack of the web between the upstream rollers 7, 9 and the downstream rollers 8, 10, and further controlling such slack, small errors in the control system would accumulate and eventually become very large for a web of indeterminate length, thereby making the control system unreasonable for use with a web of indeterminate length. Accordingly, Applicant still does not believe Okubo et al. is particularly relevant to the claimed invention relating to a *web of indeterminate length*.

As discussed in the July 27, 2007 telephone interview, Okubo et al. teach sensing the leading edge of sheet 1 in the rolled form removal device with sensor 12 (*Okubo et al.*, 2nd full paragraph on p. 5 of unverified translation; FIGS. 1-4). Okubo et al. also disclose sensing when the leading edge of sheet material 1 is enclosed between the downstream rollers 8, 10 by counting the number of revolutions of the platen roller 4 (*Id.*, 2nd full paragraph on p. 5; FIG. 1). When it is detected that the leading edge of a sheet 1 is enclosed between the downstream rollers 8, 10, the relative speeds and directions of the upstream rollers 7, 9 and the downstream rollers 8, 10 are controlled to create a predetermined slack in the sheet material between the upstream rollers 7, 9 and the downstream rollers 8, 10. (*Id.*, pp. 5-6).

As further discussed in the telephone interview, Okubo et al. only teach detecting if the sheet material 1 has achieved any of the predetermined slack states of f, g or h by determining the difference between the amount of paper the upstream rollers 7, 9 have transported and the amount of paper the downstream rollers 8, 10 have transported (*Id.*, 2nd paragraph, p. 6). However, as agreed upon in the telephone interview, Okubo et al. do not teach or suggest "*measuring the distance that the radiused section of the web extends into the third portion of the web path with a sensor to determine at least one of a measured position and a measured radius of the radiused section*," or "*creating a signal based on at least one of the measured position and the measured radius*," nor is any control effected or suggested based on whether the sheet material has achieved a predetermined slack state, and definitely not "*while the web is moving through the web path*," as claimed in amended claim 16.

For at least these reasons, Okubo et al. do not cure the deficiencies of Shimoda et al. in teaching all of the limitations of amended claim 16.

Akira teaches an apparatus (e.g., curl straightening apparatus 13 in FIG. 1) for straightening curls produced in spliced sheets in correspondence with the change in the diameter of an incoming winding roll. Akira teaches controlling curl by using a logical equation to predetermine the amount of decurling needed based on the diameter of the incoming winding roll. Akira specifically decurls a sheet by applying a decurler bar to the sheet between two backup rolls. The wrap angle of the sheet on the decurler bar is adjusted based on the results of the calculation of an optimum wrap angle using the logical equation by relatively changing both the backup rolls and the decurler bar (*Akira*, col. 2, lines 48-63).

As a result, Akira does not teach or suggest "*measuring the distance that the radiused section of the web extends into the third portion of the web path with a sensor to determine at least one of a measured position and a measured radius of the radiused section*," or "*creating a signal based on at least one of the measured position and the measured radius*," as claimed in amended claim 16.

Furthermore, there is no indication that the "*effective radius*" of the spliced sheets at the decurler bar is at all controlled, much less, controlled "*based on the signal while the web is moving through the web path*," as claimed in claim 16. On the contrary, as can be seen from the figures (e.g., FIGS. 2-4(F)) Akira teaches adjusting the wrap angle of the spliced sheets (and therefore residence time) around the small fixed radius decurler bar 31. Adjusting the wrap angle, and therefore residence time, around the small fixed radius roller is very different from "*controlling the effective radius*," as claimed in claim 16.

For at least these reasons, Akira does not cure the deficiencies of Shimoda et al. in teaching all of the limitations of amended claim 16.

For at least the reasons described above, independent claim 16 and dependent claims 17-20 are allowable.

Dependent claims 17, 19 and 20

Claims 17, 19 and 20 are each ultimately dependent upon amended claim 16, and are therefore allowable based upon amended claim 16, and upon other features and elements claimed in claims 17, 19 and 20 but not specifically addressed herein.

In summary, the rejection of claims 16, 17, 19, and 20 under 35 USC § 103(a) as being unpatentable over Shimoda et al. in view of Okubo et al. and Akira has been overcome and should be withdrawn.

Dependent claim 18

Claim 18 is rejected under 35 USC § 103(a) as being unpatentable over Shimoda et al. (U.S. 6,362,020) in view of Okubo et al. (JP 63-171755 translation) and Akira (U.S. 4,952,281), as applied to claims 16, 17, 19 and 20 above, and further in view of either of Crowley et al. (U.S. 6,626,343) or Calvert (U.S. 6,820,671).

Claim 18 is dependent upon amended claim 16, and is therefore allowable based upon amended claim 16, and upon other features and elements claimed in claim 18 but not specifically addressed herein.

In summary, the rejection of claim 18 under 35 USC § 103(a) as being unpatentable over Shimoda et al. in view of Okubo et al. and Akira, and further in view of either Crowley et al. or Calvert has been overcome and should be withdrawn.

Conclusion

In view of the amendments and remarks presented herein, Applicant respectfully submits that the application is in condition for allowance.

Applicant requests that the Examiner telephone the undersigned agent of record in the event a telephone discussion would be helpful in advancing the prosecution of the present application.

Respectfully submitted,

August 7, 2007
Date

By: /Nicole J. Einerson/
Nicole J. Einerson, Reg. No.: 57,973
Telephone No.: 651-736-4235

Office of Intellectual Property Counsel
3M Innovative Properties Company
Facsimile No.: 651-736-3833